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DELAWARE STATE MEDICAL JOURNAL

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CONTENTS

URO-GENITAL TUBERCULOSIS, A Short Review, <i>Brice S. Vallet, M. D., Wil-</i> <i>mington, Del.</i>	185	ARE YOU INCLUDED? <i>C. A. D'Alonzo,</i> <i>B. S., Wilmington, Del.</i>	191
TUBERCULOSIS PREVENTION IN DELA- WARE, <i>Joseph P. Wales, M. D., Wil-</i> <i>mington, Del.</i>	188	PROGRAM, ANNUAL SESSION	193
MEDICAL MAXIMS, <i>Edward Podolsky,</i> <i>M. D., Brooklyn, N. Y.</i>	189	PRESIDENT'S PAGE	196
		EDITORIALS	197
		MISCELLANEOUS	200
		BOOK REVIEWS	201

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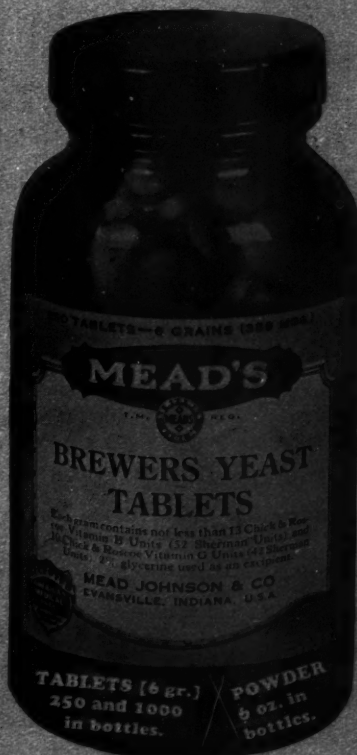
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(1) Journal American Medical Association, 90, 469, 1925 (1925)

(2) Preventive Medicine and Hygiene, M. J. Rosenau, Appleton-Century Co., N. Y. 5th Edition

(3) Food-Borne Infections and Intoxications, F. W. Tanner, Twin City Printing Co., Champaign, Illinois

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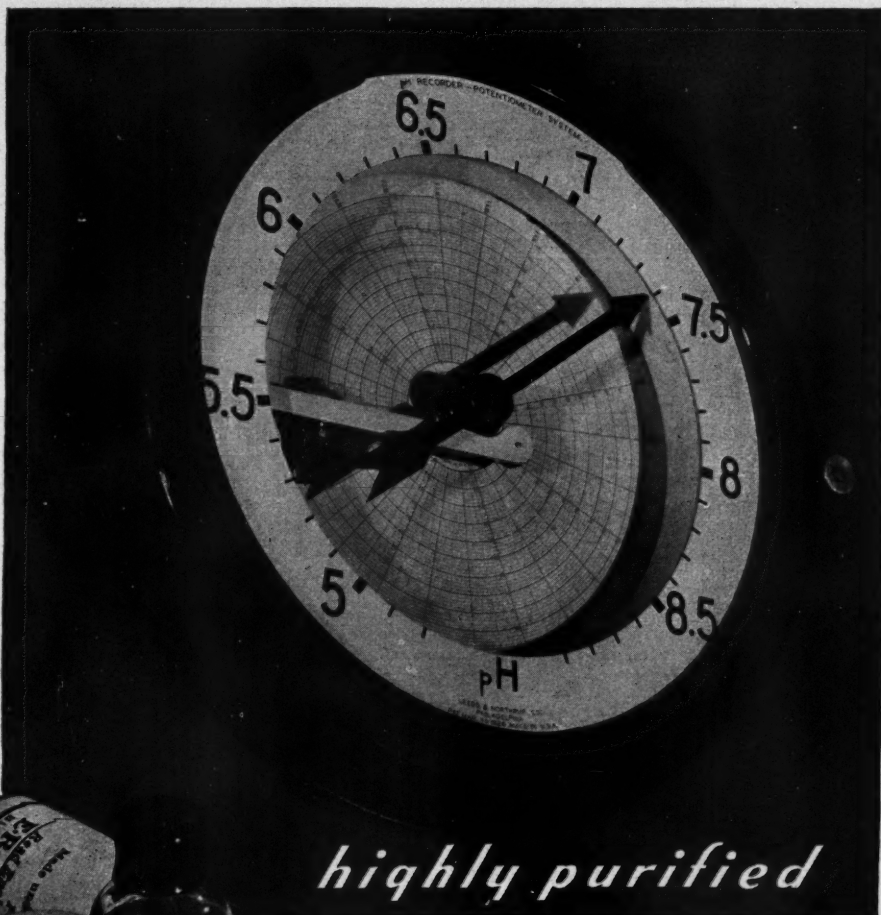
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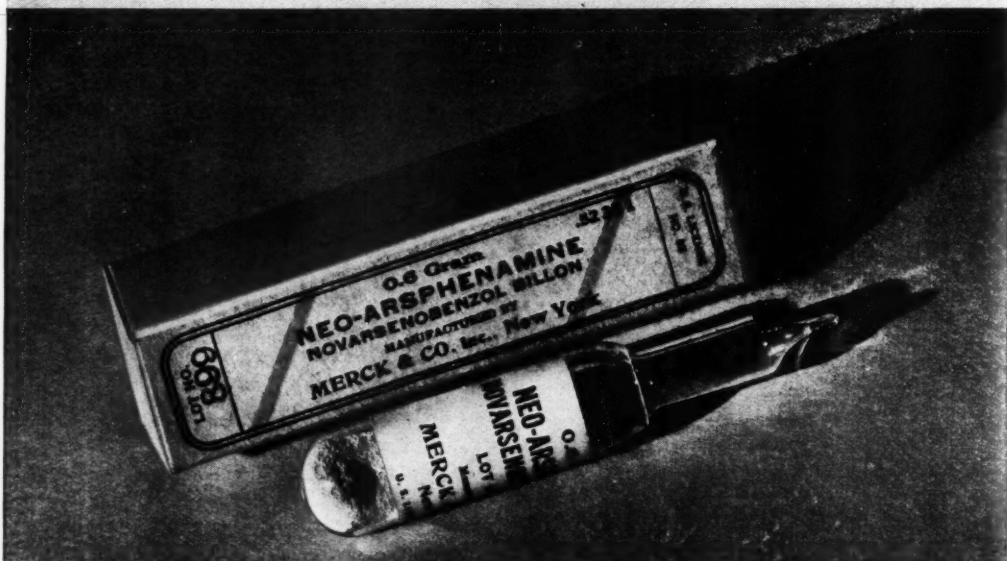
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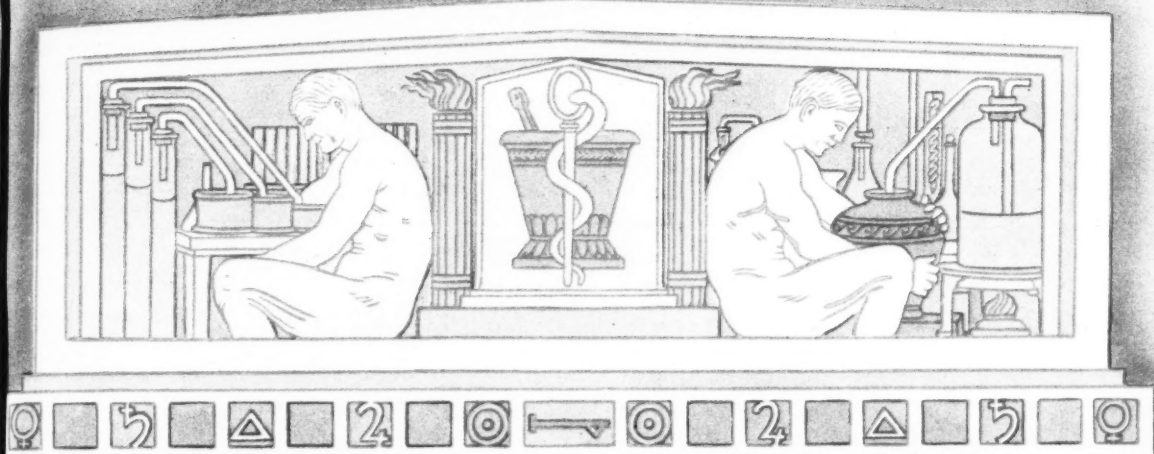
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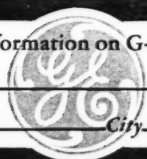
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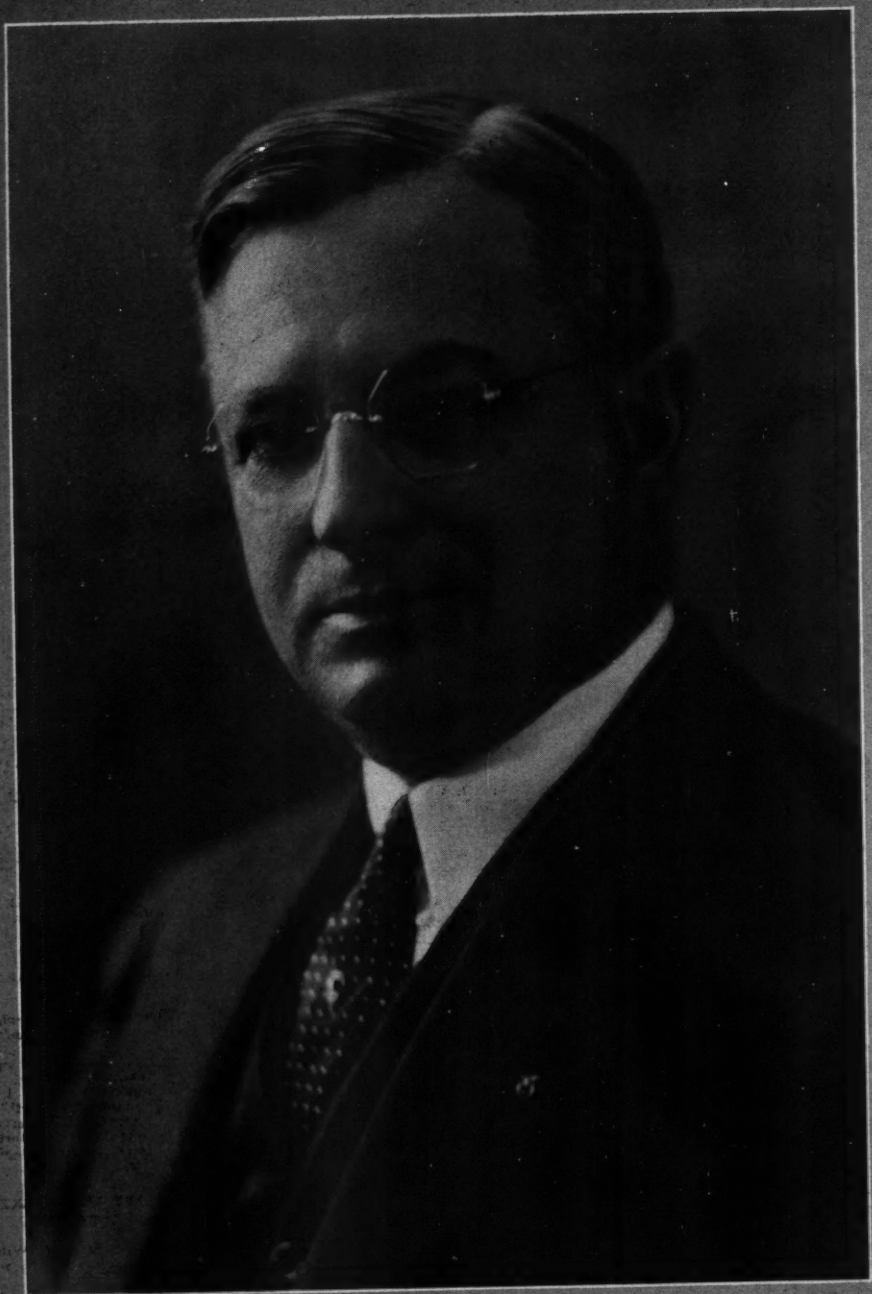
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SEPTEMBER, 1935

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URO-GENITAL TUBERCULOSIS*

A Short Review

BRICE S. VALLETT, M. D.

Wilmington, Del.

For the purpose of description, tuberculosis of the genito-urinary system may be divided into two parts: seminal tract tuberculosis and urinary tract tuberculosis.

SEMINAL TRACT TUBERCULOSIS

The incidence of seminal tract tuberculosis has been estimated at .5 per cent to 5 per cent in adults. The infection (with the possible exception of the prostate gland) is always secondary to some primary focus elsewhere in the body, usually the lungs (30-40%).

The mode of infection may be through the usual channels, such as the lymphatics, the blood stream, the urinary stream, or contiguity of tissue. The disease commonly occurs in this tract between the ages of 20 and 40. It is less common in children, but the prognosis is much more unfavorable when it does occur, many of these children developing miliary tuberculosis. In an individual case the history may be negative. Some authors point out a history of trauma as first drawing the attention of the patient to a lump in the scrotum.

In the physical examination the epididymus may present an enlarged nodular painless swelling. Hydrocele of the cord is common and should not be tapped. The vas may present some nodularity or thickening at its entrance into the globus minor, or may be normal to palpation. Again, the process may simulate an acute infection: there may be heat and swelling of the overlying tissues. Suppuration occurs, and a serotal sinus forms which does not heal. The diagnosis is

often simplified by the rectal examination, as findings here are usually positive where the epididymus is involved. The patient may have few other complaints, there may or may not be increased frequency of urination, urgency or dysuria. There may be some malaise, and the patient may not be able to put on any weight. Pyuria is usually found by the physician at this time, but is seldom noticed by the patient. Other factors in the diagnosis are the finding of the tubercle bacillus in the urine or in the prostatic secretion. It is rarely necessary and very rarely justifiable to aspirate an epididymus, as neoplasm may be present, and secondary spread may follow. Corper's potato medium for the culturing of tubercle bacilli is gaining in popularity and may in time largely supplant the guinea pig test. The x-ray may be useful in showing up calcified areas in the seminal vesicles. If there is any question of prostatic cancer, aspiration biopsy is justifiable.

The treatment of seminal tract tuberculosis is a medico-surgical problem. At the present time there are two schools of thought. One school, championed largely by Barney, may be called the conservative school. The other, strongly supported by Hugh Young, might be called the radical school.

Barney believes that the tuberculous focus begins primarily in the epididymus (being blood-borne) and that simple epididymectomy with high severance of the vas (with ligation or resection of the opposite vas) is all that is required. He claims that following this, tuberculous lesions in the seminal vesicles and prostate subside. Barney, however, had recurrence in the opposite epididymus within six months in one-fourth of his cases.

Hugh Young believes that the primary focus is in the seminal vesicle and gives an incidence of 83% of seminal vesicle tubercu-

*Read before the Sussex County Medical Society, Georgetown, April 11, 1935.

losis in his cases. He advocates removal of both seminal vesicles and all parts of the tract showing evidences of infection. In none of his cases of radical seminal tract operation has a remaining epididymus become tuberculous. Both schools are strongly opposed to castration, as the testis is only rarely involved.

Halle and Motz say: "A detailed mass of statistics, patiently followed up on pulmonary tuberculosis on the one hand and on genito-urinary tuberculosis on the other from the earliest clinical symptoms to the ultimate issue, will furnish sufficient and certain conclusions."

Diet, heliotherapy, tuberculin, quartz light, diathermy, x-ray, alpine lamp, local treatment, and rest all have a part in treatment. Residence in a sanitarium is desirable, both pre-and post-operatively.

URINARY TRACT TUBERCULOSIS

Renal tuberculosis is practically always blood-borne. There are no accurate figures as to its incidence in the general population, but in tuberculous individuals it runs about 5%. To avoid confusion in the evaluation of statistics it is well to keep in mind two widely different types of tuberculosis, viz: miliary tuberculosis, and chronic caseo-cavernous or surgical tuberculosis.

When the genito-urinary tract becomes involved in pulmonary tuberculosis the prognosis is bad, one sanitarium registering 80% fatalities. This is a marked contrast to 68% arrested or cured of the total number of cases.

While the kidney is the organ most frequently affected in the urinary tract, the original infection is practically always unilateral. When the opposite kidney is involved it is usually late, leaving a period of months or years, during which time nephrectomy on the affected side will have a curative effect. Wildbolz, of Berne, Switzerland, reports but 12% bilateral renal tuberculosis in 1,000 cases of surgical renal tuberculosis. He has done about 700 nephrectomies, with 55% well at the end of ten years, some of the cases going back 20 to 25 years. This is in marked contrast to 15% well at the end of five years under medical treatment alone. In Wildbolz's cases the urinary bladder has uniformly healed in from 2 to 5 years with follow-up

treatment. Caulk has made the observation that the more acute the renal tuberculosis the quicker the bladder heals subsequent to nephrectomy. He also says that if a patient remains symptom-free for one year following nephrectomy, a permanent cure is likely.

Signs and symptoms. It is well known that the kidney is infected quite some time before it shows itself, usually through some form of bladder manifestation. Henline speaks of this as the pre-clinical stage, and says that a few leucocytes over the normal number found in the urine of an individual between the ages of 20 to 40 should direct the attention towards a possible tuberculosis focus. Tubercle bacilli in the urine may be the only finding. The three outstanding signs and symptoms are, first, increased frequency, then hematuria and dysuria. When hematuria occurs, it is often of great help in diagnosis to cystoscope the patient at the time of bleeding, as the affected side may be easily detected. When the bleeding has stopped, it may be very difficult to determine whence it came. When hematuria and frequency occur together, tuberculosis should be strongly suspected, especially if they occur out of a clear sky. In renal tuberculosis there may be localized pain in the loin; diffuse pain occurs in 30% and ureteral colic in 20%.

Edwin Beer (Jour. A. M. A., June 8, 1929), describes seven types of renal tuberculosis:

Type I—Gives the common urgency, frequency and burning at the neck of the bladder or in the urethra during micturition, and pyuria with or without microscopic or macroscopic hematuria as the outstanding symptoms. Methenamine irritates the bladder and irrigations rarely help. Many of the cases are treated as cystitis and gonorrhea.

Type II—Simulates nephrolithiasis. Pain in the kidney with attacks of bleeding. Bladder symptoms may be marked, then subside. Plain x-ray may show porous shadows which are calcified areas in a tuberculous kidney. These may be mistaken for stone shadows.

Type III—Suggests essential hematuria or neoplasm. Massive bleeding; more or less distress or colicky pains. Bladder may fill with clots and threaten exsanguination.

Type IV—No bladder signs. Pyuria alone, or occasional hematuria.

Type V—Begins as Type I, with all vesical signs and then subsides. In these patients the kidney has become excluded from the bladder by stricture formation of the ureter; the tuberculous urine can now no longer pass over the bladder surface and cause symptoms.

Type VI—Simulates sub-acute or acute pyelonephritis, and are hard to differentiate.

Type VII—Presents as perinephric supuration, and suspicion of tuberculosis may not be entertained until the persistent sinus demands a nephrectomy and the kidney presents all the pathologic earmarks of tuberculosis.

As long as the active disease remains unilateral and no massive hemorrhage takes place, it is surprising how well they get along, but when the disease is active bilaterally there is noticeable loss in weight, lassitude, anorexia due to toxemia, and loss of sleep from nocturia, the renal secretion is disturbed, and the patient becomes preuremic or uremic. They decline within a year or two and die of renal insufficiency, or pulmonary miliary tuberculosis.

Diagnosis. The diagnosis may be simple, or it may be extremely difficult. A previous history of pulmonary tuberculosis is strong presumptive evidence of renal involvement. Beer found the tubercle bacillus in the urine in 89% of his cases. Both Beer and Gilbert Thomas have devised an ingenious technic to avoid contamination of the separate renal urines.

Corper says that for the isolation and detection of small numbers of tubercle bacilli in contaminated materials the sulphuric acid crystal violet potato method has proved in comparative tests with sputum, urine and animal tissues to be equal in efficiency to the guinea pig inoculation method, and the potato culture method possesses many advantages over the guinea pig inoculation method for practical purposes, and is therefore recommended as a substitute method for diagnostic purposes, especially when acid fast bacilli cannot be found in stained smears or when it

becomes necessary in practice to differentiate the type of bacilli present.

In 1927 Braasch of the Mayo Clinic pointed out the danger of making a diagnosis of tuberculosis on guinea pig inoculation alone. While it is the most delicate of all the tests, he found 17% of negative findings in 45 proven cases of renal tuberculosis. He concludes that it is evident that renal tuberculosis may exist even though the urine obtained from the bladder and both kidneys is negative for the bacillus of tuberculosis after repeated microscopic studies and repeated guinea pig inoculation. Lowenstein observed that certain guinea pigs are immune to tuberculosis. Von Huth and Lieberthal say that guinea pigs may spontaneously develop tuberculosis. Pelouze mentions a series of guinea pig inoculations which gave 10% failures. The diagnosis may often be made by observation cystoscopy alone. Caulk says that he was able to make a diagnosis in 73% of cases by this method. It is advisable to use some sort of anaesthesia when performing it, as these bladders are extremely sensitive.

Function tests such as phenolsulphonephthalein and indigo carmine are notoriously unreliable. Braasch and Keyes have both observed that the diseased kidney may eliminate the most dye.

Chromo-ureterosecopy or the intravenous injection of indigo carmine may sometimes be of service where it may not be feasible to catheterize the ureters. Cabot and McCarthy caution against catheterization of the healthy kidney with the ureter catheter. On the other hand, Gilbert Thomas, Kretschmer, and Braasch say that they have never known the healthy kidney to become infected in this way.

Pyelography may be the only means of making a diagnosis in some cases. It may give an unmistakable picture in renal tuberculosis when all other tests are negative. It is especially valuable in detecting early lesions and, like the x-ray in chest work, is the only way of telling the regression or progression of the lesion present in the kidney.

Intravenous pyelography in some conditions is superior to the retrograde pyelogram, but can never supplant the latter. Used rou-

tinely, it would seem to have a very definite field in the early detection of renal lesions in children. It may often save the patient a painful cystoscopy, and may give valuable information where it is difficult to catheterize the ureters. Wesson and others remark that it is useful in showing up advanced lesions, but is much inferior to retrograde pyelography in early diagnosis.

Pathogenesis. In 1924 Medlar did some very interesting work both on animals and on the human cadaver. He proved that the old idea of excretory tuberculous bacilluria without an ulcerative lesion in the kidney is false. He also believes that unilateral tuberculosis is rare. However, he does believe in nephrectomy for ulcerative tuberculosis. Again, he believes that while a tuberculous lesion in one kidney is regressing and healing, the opposite kidney may be undergoing destruction. He believes that this fact explains the common conception of unilateral disease. He examined 44 kidneys of humans who died of pulmonary tuberculosis, and found tuberculous lesions and old scars distributed as follows:

Scars—Cortical, 80%; medullary, 40%; cortico-medullary, 6%.

Tuberculosis lesions—Cortical, 75%; medullary, 11%; cortico-medullary, 13%.

Wildbolz criticizes Medlar's work, saying that Medlar's material in studying cavernous renal tuberculosis was not appropriate to his aim, the animals being of the miliary tuberculous type and his human material cases dying of pulmonary tuberculosis, which cases often show miliary tubercles of the kidneys especially before death.

Gilbert Thomas, however, being stimulated by Medlar's painstaking work has been carrying on some admirable work in a tuberculosis sanitarium of about 750 beds in Minneapolis. His work is essentially that of detecting the potential and beginning cases of renal tuberculosis. He believes that most of the cases have bilateral lesions. No urinary symptoms were present in a majority of the patients with early lesions. Less than 25% had the severe urinary symptoms usually complained of by patients with tuberculous bladder. Some developed urinary symptoms years after posi-

tive evidence of a renal lesion was obtained. Often no x-ray evidence of tuberculosis was found in early cases. He says "I have seen some lesions grow smaller with disappearance of all urinary symptoms, and in our laboratory there are kidneys that resisted a destructive lesion of tuberculosis so completely that the lesions were entirely encapsulated. When one kidney has a non-destructive lesion, and the other kidney a destructive one, the patient should be under treatment in a sanitarium until arrest of the non-destructive lesion has occurred and until he has developed a resistance against tuberculosis."

The kidney containing the destructive lesion may then be removed. Nephrectomy is only one stage in the treatment. In every instance the patient should have the advantage of sanitarium treatment afterward until no evidence of activity of tuberculosis can be found. The article on renal tuberculosis by Von Huth and Lieberthal (*Jour. of Uro.*, August, 1933), is perhaps the best article on this subject in the past ten years and further tends to explode the old theories of excretory tuberculous bacilluria and tuberculous nephritis, the material being gleaned from 1,000 cases of renal tuberculosis in the clinic of Professor Von Illyes.

They summarize their article by saying that:

1. The normal kidney does not excrete tubercle bacilli.
2. Previously existent, sclerotic, degenerative or inflammatory lesions of the kidney do not render that organ permeable to tubercle bacilli.
3. Tubercle bacilli in the separated renal urine always come from the caseous centers of disintegrated tuberculous lesions which are in open communication with the renal pelvis. In the caseous centers of such lesions myriads of tubercle bacilli can usually be demonstrated in serial sections.
4. Tuberculous lesions in the kidney are frequently accompanied by a variety of secondary non-tuberculous, degenerative, inflammatory or sclerotic changes. Such foci have erroneously been assumed by various authors to have been produced by the direct local action of the tubercle bacillus upon the renal tissue. It has also been falsely maintained that such lesions may result in the appearance of tubercle bacilli in the urine.
5. In our opinion the inflammatory foci described by various authors as a tuberculous nephritis are secondary, non-tuberculous, inflammatory changes. The bacilluria in these cases was unquestionably caused by minute, undiscovered, ulcerative, tuberculous lesions of the kidney. Such a lesion is usually located on a renal papilla, and if it is very small, may be very easily overlooked.
6. A nephrosis may develop as a result of a pulmonary tuberculosis. The occasional appearance of

a glomerulo-nephritis in such cases is due to a secondary infection (usually streptococci) of the tuberculous pulmonary cavities. The tubercle bacillus or its toxins does not produce a nephritis.

7. In the presence of such an incipient ulcerative tuberculous lesion in the kidney, the separated renal urine may contain no pus cells, the kidney may reveal no functional defect, and the bladder may be normal on cystoscopic examination. Such early lesions may occasionally heal, and in our opinion they are responsible for the transient tuberculous bacillurias which are sometimes observed.

Nephritis has become a convenient term with which almost any pathologic process in the kidney, which cannot otherwise be easily designated or catalogued, is labelled and discarded. The presence of albumen and casts in the urine is often cited as proof of the nephritic nature of a given renal lesion. But these elements may appear in the urine in almost any renal pathologic condition in which degenerative changes have occurred in the epithelium or smaller blood vessels. This carelessness is terminology is largely responsible for the errors in the interpretation of the various lesions which have been called tuberculous nephritis.

Kidneys should be examined in the fresh condition as soon as possible after extirpation. Fixatives should not be used, as they often render it impossible to locate an incipient papillary lesion grossly. The kidney should not be opened from the cortical side, but beginning at the pelvis this is opened and every calyx carefully opened and inspected minutely with a magnifying glass.

By such careful gross examination and serial section of suspected areas in every case of 240 so studied, in which tubercle bacilli were demonstrated in the separated urine, an ulcerated caseous tuberculous focus was found in the corresponding kidney (usually a papilla). In several thousand Tielh Neelson sections we have never found the organisms in the renal tissue, in the renal tubules or in the ordinary non-disintegrated tuberculous lesions. In every case of 1,900 cases in which tubercle bacilli had been demonstrated in the separated urines, tuberculous lesions were found in the kidney with three exceptions (all cases early in the series).

It may be said that renal tuberculosis is clinically unilateral but pathologically bilateral. In most of our cases of renal tuberculosis in which we were able to study the other apparently normal kidney at autopsy, small tuberculous foci were found on careful examination, and these were usually in the cortex.

Treatment. The treatment of renal tuberculosis is as in seminal tract tuberculosis, a medico-surgical problem. Young says that the operation, nephrectomy, is one of the most satisfactory in surgery. He has had a consecutive series of 111 cases without a death. Caulk has had over 100, and Wildbolz 144 without a death.

Some form of block anaesthesia, such as paravertebral or spinal, is preferable. One of the distressing complications is that of breaking down of the wound, 18% in Young's

series. Scholefield says 40% do not heal kindly. It was formerly thought that the fact of not removing the entire ureter was responsible for this, but this is now known not to be the cause, as the operation of complete ureterectomy has shown. Scholefield and Beer believe in a traumatic bacilemia. Scholefield says "the more acute the process, the more likelihood is there of a sinus developing." The previous and post-operative histories suggest that low resistance of the patient to tuberculosis is the most important factor. It is suggested that these sinuses are not due to the continuation of any existing infection but to the development of a new tuberculous process in the traumatized tissues of a patient with lowered resistance. Therefore, improved results are more likely to come from a study of the patient's general health before and after operation than from any elaboration of operative technic. Beer has noticed, where a complete ureterectomy has been performed, that the anterior rectus sheath which is absolutely avascular, no vessel being cut or tied, never becomes infected but closes by primary union though the diseased ureteral stump is at the bottom; whereas, the posterior vascular muscle incision fails to heal kindly in about one-third of the cases.

Nephrectomy is often justifiable in bilateral renal tuberculosis. Ureterostomy or ureteral implantation may be done on the remaining kidney in selected cases. Ureterotomy on the only remaining Ureter was done on one of my cases for the correction of an intramural stricture at the ureterovesical junction. Six attempts from the bladder side had been unsuccessful. A good result was obtained. Cystostomy should not be done. Tuberculin is not a cure for renal tuberculosis, however, it cannot be dismissed as not having any value. There is evidence that it aids in building up the general health of patients with this type of tuberculosis. In the treatment of post-operative and inoperable patients it has seemed to be a helpful factor in the regime of treatment, if confined to the afebrile type. The treatment of the tuberculous bladder post-operatively is often a problem in itself. Irrigations and instillations, sandalwood oil and methylene blue

also by mouth, fulguration of chronic lesions, and ultra-violet irradiation with simultaneous ventilation of the bladder all have a field of usefulness. Young says that heliotherapy is the most important of all measures, taking precedence over rest, forced feeding, fresh air, etc. The alpine lamp is very useful. One of the latest innovations is the direct application of ultra-violet irradiation to the kidney pelvis, ureter and bladder through the cystoscope with especially contrived sounds and catheters.

In conclusion, we might reiterate that it is early detection, and adequate and long-continued treatment that gives the best results in this complication of human tuberculosis.

TUBERCULOSIS PREVENTION IN DELAWARE*

JOSEPH P. WALES, M. D.
Wilmington, Del.

Most of you will remember that I appeared before you last year with a definitely outlined program for tuberculosis testing of the children of our state.

This program had two definite objects in view: first, to stimulate your interest in the work itself; secondly, to keep the carrying out of the program absolutely in the hands of the family physician or the medical profession as far as that was possible. Only those pupils have been examined who presented a card from their parent or guardian, signed by the family physician as well. Letters were sent to physicians in each community in ample time before the testing in that community was to be done. This was done to give those physicians ample opportunity either to refer the cases back to those who were willing to do the testing, or for the family physicians to do the testing themselves.

In all, up to the present month of October, some 1586 children between the ages of about six to seventeen years have been tested. Out of that number some five hundred, or a little over 30 per cent, reacted to the skin test. Of those 500 reactors, according to our outlined program, 378 were x-rayed, and of those, 139 showed evidence of having demonstrable chest pathology. Twelve of them showed absolutely

unstable childhood lesions needing treatment.

On the whole, this is a rather gratifying indication of interest on the part of the parents of our state, and also of the doctors; but when we consider what the school population of the state of Delaware is—roughly 30,000—and if we find the same number of reactors in each group, as I think you will, indicating latent tuberculosis, and if you multiply that by the 12 active cases which I think will be in the same proportion, you can readily realize that it leaves a good deal to be desired for the future.

During the past few years we have not won out in this fight against tuberculosis; in fact, I should say that in the last two or three years we have decidedly lost ground. To effect a decrease in the mortality we must find these early cases, and we must provide accommodation for those requiring treatment. At the present time we have a waiting list of over 40 at Brandywine Sanitarium who cannot get in. Of those 40, a certain proportion will die before they are admitted into the sanitarium, and another certain proportion will probably be so far advanced that treatment will not be of the slightest avail. Hardly a day or a week passes that we don't read in startling headlines in our daily papers of some national or state disaster entailing loss of life; but we never—and it is going on silently all the time—advertise this silent toll of death caused by tuberculosis.

Our Safety Council has put up in Dover and in Wilmington, and I think elsewhere, posters showing the deaths that occur on our roads. It is not intended as a method of advertising of course, but I sometimes think we might make a dent in the mentality and possibly in the generosity of our legislators if we had some such method and advertised this silent death roll of tuberculosis. It might make them sit up and take notice that something has got to be done and done soon, if we are going to make a reduction in the death rate in this state from tuberculosis.

As you all know and have felt, we have gone through one of the worst depressions the world has ever seen. As a result of that depression, with its poorer food than that to

*Read before the Medical Society of Delaware, Dover, October 9, 1935.

which we have been accustomed, poorer housing and poorer conditions of all sorts, we are going to face possibly an increasing death rate from tuberculosis in the next few years. So I ask each and every one of you—and I must say I am just as guilty as the rest of you are—to help meet this situation. Of the 1586 examinations one hundred per cent done by the state agency, outside of a few cases seen in private practice, and this despite the fact that you were urged to do this work so as to keep your families under your own eye. We have failed just one hundred per cent to do it.

I didn't come here to spank any or all of us on that, but I don't think it has been such a great showing. However, I ask each and every one of you to keep on encouraging this tubercular testing program. It has been very splendidly and ably done by Dr. Phillips and his assistants, but I think the private medical profession should do some of it themselves. It is not a hard test to give, and I think if you urged upon your families the doing of it it will enable us to catch these cases early and in their incipient stage, so that we can in the future have a startling decrease, I hope, in our death rate from tuberculosis.

DISCUSSION

DR. L. B. PHILLIPS (Brandywine Sanitarium): There are just one or two things that I want to point out that this chart shows. In the first place it shows the relation between the contact and the non-contact groups. In the contact group we found 10 per cent or 10 cases needing treatment out of 130 x-rayed, while in the non-contact group we found only 2 cases needing treatment out of 249 x-rayed. All in the contact groups were definite, we thought, contacts, while in the non-contact groups there are probably some who were contacts.

Then also there is a graph there, charted according to the graph of Delaware with other communities, which more or less coincides with what other communities find too.

Thank you!

DR. NORWOOD N. VOSS (Wilmington): I would like to say that the whole tubercular situation reminds me of Ben Hur in the chariot races. The faster the horses trot or

run the faster the floor moves under their feet. In our tubercular situation it seems to me the more effort we make to cure the disease and eradicate it, the faster the lack of food, and so on, as a result of the depression, which of course increases the incidence of tuberculosis. Of course, that was mentioned by Dr. Wales. Depression brings lots of trouble in its wake.

MEDICAL MAXIMS

EDWARD PODOLSKY, M. D.
Brooklyn, N. Y.

A good prognosis is the best of tonics for a cardiac patient.—Lindsay.

Tell a cardiac patient to find out what he can do and do it; tell him to find out what he cannot do and never do it.—Clifford Allbutt.

Never give a definite opinion as to how long a patient suffering from pulmonary tuberculosis will live, for the only certainty is that if you do, you will be wrong.—Samuel Gee.

If there be a calling which feels its position and its dignity to lie in abstaining from controversy and in cultivating kindly feelings with men of all opinions, it is the medical profession.—Cardinal Newman.

Physicians, when the cause of disease is discovered, consider that the cure is discovered.—Cicero.

In pneumonia the disease is in the lungs, but the danger is in the heart.—Lindsay.

Pain is the prayer of a nerve for healthy blood.—Romberg.

The nature of the body can only be understood as a whole.—Hippocrates.

You cannot be a good doctor without pity.—Axel Munthe.

Mystery is the fundamental curse of medicine; evasion and secrecy are criminal. The best way to help any human being is to help

him help himself. The man who is evasive in his dealings with his patient is either dishonest or ignorant, or both.—F. B. Morehead.

It is better to have a less accurate diagnosis and a more favorable prognosis.—Arthur Curtis.

The pomp and dignity of the medical art is less seen in neat and elegant formulae than in the cure of diseases.—Sydenham.

Man as an animal has to eat to live, but as an omnivorous epicure he frequently lives to eat.—Charles H. La Wall.

Treat the man who is sick, and not a Greek name.—Jacobi.

Medicine is a progressive science and knows not the meaning of stagnation. We must either advance or retreat. Hindering and hampering obstacles in the paths of advancement can result in but one thing—retreat, with its detrimental effect on the health of mankind.—C. W. Waggoner.

What is spoken of as a clinical picture is not just a photograph of a man sick in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes and fears.—Francis W. Peabody.

For many patients hope is the best medicine.—Lindsay.

The first qualification for a physician is hopefulness.—James Little.

Physical ills are the taxes laid upon this wretched life; some are taxed higher, and some lower, but all pay something.—Chesterfield.

We all labor against our own cure, for death is the cure of all diseases.—Sir Thomas Browne.

He who has wealth, has hope; and he who has hope, has everything.—Arabian Proverb.

It is not the disease but neglect of the remedy which generally destroys life.—Latin Proverb.

Medicine, individualistic in infancy, is by virtue of its normal development about to become social with the force of age.—E. Rist.

Knowledge makes the physician, not the fame of the school.—Parracelsus.

Truly it is better to cure diseases than to foretell their course, but this is unfortunately not always possible.—Hippocrates.

The most important therapeutic factor in medicine is therapeutic success. It is of greater moment than are all special investigations, be they ever so exact, and than all ingenious theories.—Bernard Aschner.

An important phase of medicine is the ability to appraise the literature correctly.—Hippocrates.

Where there is love of humanity, there also is love for the art of medicine.—Hippocrates.

The wisest psychology will never replace quinine and mercury in the cure of certain diseases, nor can it obviate the necessity of operative procedure for a perforated appendix.—C. F. Martin.

Nature always hangs out a little flag, which when seen and understood points to the diagnosis.—J. B. DeLee.

If a child be born well, at least two-thirds of its battle for life is won.—William Colby Cooper.

Science cannot save lives or cure disease until it is applied.—Anon.

Symptoms, with or without physical findings, need treatment. Physical findings without symptoms need to be watched.—S. E. Thompson.

In all things relating to disease, credulity

remains a permanent fact, uninfluenced by civilization or education.—Osler.

Were it not for the poverty of the soil in defensive essences, the seeds of disease would never grow.—Leonard Williams.

Drive away nature and back it comes at a gallop.—Proverb.

Weariness without cause indicates disease.—Hippocrates.

With a learned physician and an obedient patient, sickness soon disappears.—Rhazes.

ARE YOU INCLUDED?

C. A. D'ALONZO, B. S.
Wilmington, Del.

Millions of people are continually claiming to be getting on each other's nerves. Others are getting under each other's skin. And still others are claiming to be getting under each other's hair. Most of us realize it is really impossible to get on anybody's nerves. And you can just feature two hundred-pound Mrs. Smith under the skin of Mrs. Jones. Now wouldn't that be an enormous sight! But why all this? It seems that most of us know that we cannot get on anybody's nerves, and yet we all say it. It has often been stated that none of us are totally original. So where do these statements find their origin? With a little thought and study the statements may be traced to ancient and dust-laden ideas and theories scattered along the development of medical science.

A lot of popular phrases may be seen to originate from the science of medicine as Galen (131-201) saw it. Galen believed that the nerves were hollow tubes which contained air or "pneuma" as he called it. Essentially, a nerve fiber represents a long process of a nerve cell, the conducting mechanism of which is a long strand of protoplasm, which is produced by the cell, and which has come to be known as the axon. The axon is composed of numerous fibrillae, which are embedded in a fluid material. A layer of material known as myelin may or may not surround these

fibrillae. In accordance with the theory of Galen, if a nerve were pushed upon, as Mrs. Smith getting on it, it might be conceived that Mrs. Jones might become quite nauseated.

The origin of the statement of "getting under my skin" is somewhat more difficult to explain. However, with so many things under the skin, some may think that just anything could fit there. Now to exteriorize the subject, when we say that our nerves are "on edge" what we really may mean is that they are more external, and hence more subject to this "pneuma," or air. This is again in harmony with the galenic view of physiology. In other words when we are "on edge" we are in a more dynamic state. Thus, with hyperirritability we would get great amounts of air in those "hollow tubes." The air in this state would be under pressure, and if great enough may "shatter our nerves." Countless numbers speak of "pulsating nerves"; nerves do not pulsate. Activity may cause an increase in size, but it is the arteries which pulsate. If the nerves were hollow tubes they might be conceived of as pulsating. There is another outstanding reference in this connection. We have all at some time or other spoken of a certain person having a lot of spirit. Galen thought that this "pneuma" in the nerves was a particular kind of spirit. Therefore, those people with a superabundance of spirit are those with a big lumen in their nerves, thereby containing a lot of "pneuma," while those less fortunate individuals with a small lumen are lacking in spirit.

Another popular ancient notion was that the brain acted after the fashion of a sponge, whose function it was to keep the heart cool. Out of this one idea countless popular present-day medical phrases may be traced. Perhaps this very article is making your blood boil, but wouldn't you really be a sight with boiling blood! A human being on fire! Conceive that! Maybe the heating of the circulation is the cause of another well known fright symptom, "a lump in the throat." Here the heart seeks to get first hand aeration by attempting to get in the throat. Therefore, if your blood boils, you have hardening of the brain.

But who of us desire to be called such things as "hard-headed," "stone headed," etc.? In lieu of this, the wise of us will claim to have a soft brain. But remember that softening is a sign of degeneration. Where does that leave us? Well, at least we can say that our brain has just the proper consistency, neither too hard nor too soft. Now what initiates the pressing of this sponge? The old theory of "pneuma" in the nerves would answer this, namely, that with a strong jet of air, the brain would be squeezed. The extreme opposite of boiling blood would be freezing blood. Therefore, we speak of our blood "running cold." Here the spongy apparatus is working so efficiently it freezes the circulation. If the blood froze, the heart would have to stop beating. This would be incompatible with life. Consequently, each of us who have spoken of our blood freezing would be dead. What a thinly populated world this would be! A "cool headed" person is one whose brain and heart work in perfect harmony.

Another popular expression that we have all probably said at some time or other is that our "hearts skip beats." In reality this actually does not happen in various heart disorders. But the expression undoubtedly dates back before the seventeenth century, when Harvey discovered the circulation of the blood. The expression seems to be related to the others discussed. In amazement, emotion, or suddenness, it was possibly conceived that the spongy apparatus failed. Thus the heart which relied on the brain for cooling became excessively warm, and attempted to compensate for this by "skipping a beat."

Advancement and progress march on, but ancient influences stay with us. Few of us realize or appreciate this. We rarely stop to think of the origin of our most popular expressions. Somehow or other these phrases seem to come to us naturally. They seem to fit in better, to express the idea more adequately, in short they just seem appropriate to the occasion, to convey the thought more sufficiently. More assuredly most of us do not believe them. Just as assuredly we do not stop to even think of them. They are intrinsic phrases springing from nowhere, it may seem. We say them with a sense of original-

ity, with out a mere consideration of their evolution. But why worry? No harm is done. They are slang. They are disproven theories, notions, and concepts, which have adhered and clung to the elastic mind of man. The impression they create is deep, the significance of their presence is interesting. At times it seems as if they relate a feeling better than any other description could seem to do it. The expression seemingly fits the occasion, even though the statement is fallible. So we will continue to use them. Only as time goes let us hope to improve in our appreciation of their untruthfulness. So millions of people will continue to get in the nerves of millions of other people, as heart after heart skips beats.

Radio Broadcasts

The American Medical Association will broadcast over the Blue network of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time) October 1 and each Tuesday thereafter, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program will be Your Health. The program will be recognizable by a musical salutation through which the voice of the announcer will offer a toast: "Ladies and Gentlemen, Your Health!" The theme of the program will be repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

The October schedule is as follows:

- October 1. Burns, Morris Fishbein, M.D.
- October 8. Hazards from Foreign Shores, W. W. Bauer, M.D.
- October 15. Unconsciousness, Morris Fishbein, M.D.
- October 22. Asphyxiation, W. W. Bauer, M.D.
- October 29. To be announced.

—J. A. M. A., Aug. 31, 1935.

MEDICAL SOCIETY OF DELAWARE

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WILLIAM P. O'READY, Claymont, Oct. 9, 1934

THOMAS N. MILLIKIN, Wilmington,

Nov. 24, 1934

JOSEPH M. MARTIN, Lewes, March 30, 1935

GENERAL INFORMATION

BY-LAWS

Article III

SECTION 1. The Society shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members and guests. This Session shall be held at such time and place as has been fixed at the preceding session by the House of Delegates.

Article X

SECTION 1. No address or paper before this Society, except those of the President, invited guests, and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject, except by unanimous consent.

SECTION 1. All papers read before this Society shall be typewritten, double spaced, with wide margins. Carbon copies will not be accepted.

SECTION 3. All papers read before this Society shall become its property. Each paper shall be deposited with the Secretary immediately after reading.

SECTION 4. The deliberations of this Society shall be governed by parliamentary usage as contained in the latest edition of Roberts' Rules of Order, when not in conflict with these By-Laws.

SECTION 5. The Principles of Medical Ethics of the American Medical Association, as contained in the latest edition, shall govern the conduct of members in their relations to each other, to this Society, and to the public.

Essayists will please remember that all papers presented before the Society become the property of the Society and therefore are not to be published or submitted for publication elsewhere than in the DELAWARE STATE MEDICAL JOURNAL.

**MONDAY, OCTOBER 7TH, 1935
MEETING OF THE HOUSE OF
DELEGATES**

**Delaware Academy of Medicine
8:30 P. M.**

1. Call to order.
2. Roll Call.
3. Reading of Minutes of Last Session.
4. Appointment of Committee on Nominations.
5. Reports of Officers.
 - a. President.
 - b. Secretary.
 - c. Treasurer.
 - d. Councilors.
6. Reports of Standing Committees.
 - a. Scientific Work.
 - b. Public Policy and Legislation.

- c. Publication.
- d. Medical Education.
- e. Hospitals.
- f. Necrology.
- Reports of Special Committees.
 - a. Woman's Auxiliary.
 - b. Cancer.
 - c. Syphilis.
 - d. Tuberculosis.
 - e. Medical Economics.
 - f. Criminologic Institutes.

7. Report of Delegate to the American Medical Association.
8. Unfinished Business.
9. New Business.
 - a. Resolutions.
 - b. Communications.
 - c. Appropriations.
 - d. Approval of Scientific Program.
 - e. Selection of Meeting Place.
 - f. Miscellaneous.
10. Adjournment.

**TUESDAY, OCTOBER 8TH, 1935
GENERAL SESSION
Delaware Academy of Medicine
9 A. M.**

- 9:00 A. M.—Invocation.
Rt. Rev. Philip Cook, Bishop of Delaware.
 9:10—Address of Welcome.
Hon. C. Douglass Buck, Governor of Delaware.
 9:25—President's Address: Medical Ethics, Then and Now.
Jerome D. Niles, M. D., Townsend.
 10:00—Report of House of Delegates.
Scientific Papers
 10:30—Urology and the Child. (Presentation of Cases—Lantern Slides).
Brice S. Vallett, M. D., Wilmington.
 11:00—Infections of the Upper Urinary Tract.
Joseph C. Birdsall, M. D., Philadelphia.
 11:45—Some Angles of Acute Otitis Media.
Charles P. White, M. D., Wilmington.

**LUNCHEON
By the
NEW CASTLE COUNTY MEDICAL
SOCIETY
Hotel du Pont
12:45 P. M.**

GENERAL SESSION

Delaware Academy of Medicine
2 P. M.

2:00 P. M.—Diagnosis and Treatment of Brain Tumors.

Francis C. Grant, M. D., Philadelphia.

2:40—Chronic Ulcerative Colitis—Impressions Gained from a Review of One Hundred Cases.

Henry L. Bockus, M. D., Philadelphia.

3:00—Cancer of the Larynx: Its Diagnosis and Surgical Cure.

Gabriel Tucker, M. D., Philadelphia.

4:00—Foetal Mortality in Relation of Methods of Delivery.

Morris W. Vaux, M. D., Philadelphia.

4:40—Post-operative Complications, with Special Reference to Water and Chemical Balance.

Damon B. Pfeiffer, M. D., Philadelphia.

BANQUET

Hotel du Pont
Subscription \$2.00
Dress Optional
8 P. M.

WEDNESDAY, OCTOBER 9TH, 1935

GENERAL SESSION

Delaware Academy of Medicine
9:30 A. M.

9:30 A. M.—Some Uncommon Bone Lesions.

B. M. Allen, M. D., Wilmington.

10:00—Closed versus the Open Reduction of Fractures.

Hubley R. Owen, M. D., Philadelphia.

10:40—The Diagnosis of Coronary Arteriosclerosis and Its Complications.

Charles C. Wolfert, M. D., Philadelphia.

11:20—Immunity and Vaccination in Acute Poliomyelitis.

John A. Kolmer, M. D., Philadelphia.

12:00—Election of President.

LUNCHEON

By the
MEDICAL SOCIETY OF DELAWARE
Hotel du Pont
1:00 P. M.

EXHIBITS

Charles Lentz & Sons, Philadelphia

Philip Morris & Co., New York

WOMAN'S AUXILIARY

to the

MEDICAL SOCIETY OF DELAWARE

WEDNESDAY, OCTOBER 9th, 1935

Hotel du Pont

10 A. M.

REPORTS

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Delegate to A. M. A.,

MRS. CHARLES E. WAGNER

President **MRS. JOSEPH S. MCDANIEL**

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M. S. of D. C.

DR. PAUL R. SMITH Wilmington

Chairman, Auxiliary Advisory

Committee, M. S. of D.

LUNCHEON

Hotel du Pont

1:00 P. M.

Social Afternoon

The President's Page

To the Members of the Medical Society of Delaware:

The Medical Society extends a very cordial invitation to all physicians to attend the yearly convention to be held in Wilmington, October 8th and 9th, at the Delaware Academy of Medicine.

From a scientific standpoint these conventions in the past have been very instructive, the speakers on the programs have been among the best, and much good has been derived by all those physicians that have attended. Our programs have been a credit to any state medical society. This year our program committee has made it possible for us to have on our program a number of the outstanding men of the profession—men who have been making medical history.

I make a special plea for our members to attend *all* of the meetings this year. It is rather discouraging for a speaker to talk to half empty chairs. I feel that each and every member of this Society owes a little effort along the lines of loyalty and courtesy to make it a point to be at this convention. It is the height of my ambition as President of the Society to see the largest attendance that we have ever had. You owe it to the Society, and to all those who have given their time and energy to make this convention a success.

Hoping you will take seriously my appeal, and make every effort to attend throughout the whole program, I am

Faternally yours,

J. D. NILES.

EDITORIAL

DELAWARE STATE MEDICAL JOURNAL

Owned and published by the Medical Society of Delaware. Issued about the twentieth of each month under the supervision of the Publication Committee.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Society are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Manuscript should be sent in typewritten, double spaced, wide margin, one side only. Manuscript will not be returned unless return postage is forwarded.

The right is reserved to reject material submitted for either editorial or advertising columns. The Publication Committee does not hold itself responsible for views expressed either in editorials or other articles when signed by the author.

Reprints of original articles will be supplied at actual cost, provided request for them is attached to manuscripts or made in sufficient time before publication.

All correspondence regarding editorial matters, articles, book reviews, etc., should be addressed to the Editor. All correspondence regarding advertisements, rates, etc., should be addressed to the Business Manager.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

It is suggested that wherever possible members of the State Society should patronize our advertisers in preference to others as a matter of fair reciprocity.

Subscription price: \$2.00 per annum in advance. Single copies, 20 cents. Foreign countries: \$2.50 per annum.

VOL. VII SEPTEMBER, 1935 No. 9

RE: POLIOMYELITIS

Despite the fact that the end of the usual poliomyelitis season is almost in sight, this dread disease is still reaching out for more victims. In at least four states—Virginia, North Carolina, Tennessee and Massachusetts—it has reached epidemic proportions, averaging 400 cases in each of them. New York State is reported to have had approximately 500 cases. In New Jersey, Pennsylvania and Delaware it has remained sporadic, with only a slight rise in the usual case incidence. Once again, it has lingered longest and strongest along this seaboard, and once again has spread via those routes that are the most travelled.

Delaware has been fortunate in that only three cases have arisen so far, with no deaths. To the State Board of Health largely goes

the credit for this enviable record, since it was they who, early in the summer, required all persons coming from suspect areas and remaining in the state over 24 hours to submit to a medical check-up daily. The response from the travelling public has been immediate and thorough, and undoubtedly prevented the spread of polio by contacts from other states. Delaware was the first state to institute this regime, and, though criticized at first, the end seems to have justified the means.

While we are all familiar with the typical polio syndrome, many cases are atypical, and the findings, prior to the paralytic stage, are so confusing that a diagnosis cannot be made. In this connection we find quite *a propos* the following editorial from the September, 1935, issue of the *Virginia Medical Monthly*.

THE PARADOXES OF POLIOMYELITIS

We call it infantile paralysis, but only a small proportion of its victims are infants, and less than one out of sixteen who are attacked by the disease develop paralysis, and many of these recover muscle function almost completely.

The spread of no other disease occasions such general alarm as poliomyelitis, and yet there has never been a pandemic such as has frequently occurred of influenza for example. When outbreaks of poliomyelitis have assumed epidemic proportion they have been remarkably restricted, rarely exceeding in this country the boundaries of more than one or two states.

Although undoubted instances of its sporadic manifestations are on record as early as the time of ancient Egypt and we are now accustomed to look upon it as one of our common epidemic diseases, the first well-known record of the epidemiological manifestations of poliomyelitis (Medin) is hardly fifty years old.

Most epidemic diseases show fairly predictable periodicity—measles for instance. The outbreaks of poliomyelitis are extremely irregular and do not conform to recognized epidemiological laws.

The fact that individuals who have poliomyelitis usually enjoy life-long immunity from a second attack, and that experimentally animals show resistance to reinfection, suggests the presence of antibodies of high titre in the so-called immune serum. Yet, in a number of instances, carefully controlled attempts to abort the disease in the pre-paralytic stage by the use of immune serum have not produced convincing results.

Contrary to expectations the serum of normal persons, persons who are not supposed to have had poliomyelitis, appears to be about as effective in neutralizing emulsions of the virus as the so-called immune serum.

Although pathological studies suggest the intestinal tract as the portal of entry of the virus, recent animal research indicates the naso-pharynx indicating extension along nerve fibres, and

epidemiological study emphasizes the importance of droplet infection.

Although the cerebro-spinal lesions of poliomyelitis, particularly those of the anterior horn, have dominated pathological descriptions, it is widely claimed that poliomyelitis is primarily a disease of the reticuloendothelial system with widespread evidence of general lymphoid hyperplasia.

Although the disease strikes rich and poor alike, the favored as well as the unfavored, certain individuals appear to be practically immune to its ravages. They are those persons who are the fortunate possessors of the so-called B agglutinins in their blood.

Although spinal puncture has been highly regarded as a therapeutic procedure, there seems to be accumulating evidence that in those instances in which it is resorted to before the disease has reached the cord structures, or where an excessive amount of cerebro-spinal fluid is withdrawn, it may do actual harm.

Although a mononucleosis is usually described as the typical cell change in the spinal fluid of poliomyelitis, in many instances a polymorphonuclear leucocytosis is the finding.

The Drinker respirator is popularly regarded as a life saver in the bulbar type of case, but those with experience in the use of this apparatus now tell us that it may do more harm than good, and that its use should be restricted to those spinal cases in which there is weakness or paralysis of the accessory muscles of respiration.

Although the disease is still generally considered a systemic infection, at least in its earliest stage, the right of the general practitioner to assume complete management of it has been challenged by at least three specialists—the neurologist, who maintains that its cerebro-spinal manifestations place the disease in his domain, the orthopedist, who views its crippling and deforming sequelae as peculiarly entitling him to the care and treatment of the disease even in its acute manifestations, and the pediatrician who quite naturally considers the age incidence of the disease as entitling him to certain priorities.

Vaccination in Poliomyelitis

Two vaccines are prominently before the medical profession at the present time.

Kolmer's vaccine is a pooled 5 per cent suspension of the emulsified cords of poliomyelitic monkeys in 1 per cent sodium ricinoleate to which has been added 1:80,000 phenyl mercuric nitrate. It is administered in three weekly ascending doses of from 5 c.c. to 2 c.c. according to the age of the patient. Aside from slight local reactions few untoward effects have been reported. Kolmer and others have showed that this type of vaccine protects monkeys from otherwise fatal doses of poliomyelitis virus. He has showed also in a small group of twenty-five children of various ages that 75 per cent of those without the presence of antibodies in their blood before vaccination develop large amounts (as demonstrated by virus neutralization tests) as early as one week after the last dose of vaccine.

It is recognized that Kolmer's vaccine consists of a live though attenuated poliomyelitis virus (a virus that has been fixed by repeated animal passage and whose virulence has been lessened by the addition of sodium ricinoleate). The vaccine is capable of giving poliomyelitis to monkeys if administered intracerebrally in sufficient doses. It is believed that the virus actually multiplies after it has been injected into the human body, the size of the dose and the route of inoculation making this a favorable rather than an unfavorable result. The duration of immunity conferred by the

vaccine is unknown. Kolmer has to date inoculated more than 6,000 children with it without any untoward results. It may be obtained directly from him at small cost.

Brodie's vaccine consists of a 10 per cent virus suspension of the emulsified cords of monkeys inactivated with .1 per cent of formalin for from sixteen to forty-eight hours. It is given in a single 5 c.c. dose or repeated after ten days. The latter method is said to give greater protection. Brodie's vaccine has now been given to more than 4,000 children with only negligible reactions and he considers it perfectly safe as no amount of the vaccine injected intracerebrally in monkeys is capable of producing the disease. Demonstrable antiviral substances can be shown in the sera of vaccinated children and it is believed that the degree of protection is "quite appreciable." Brodie's vaccine while being employed experimentally on an extensive scale is still not commercially available.

The average doctor will want to know are these vaccines safe? Do they produce immunity? Is the immunity sufficient to protect against the disease? And how long does immunity last? The last two questions appear to be yet unanswered.

Serum in Poliomyelitis

The case for serum may be summarized briefly by saying that poliomyelitis considered by many to begin as a systemic disease (pre-paralytic stage) with a definite period during which the central nervous system is not involved and during which theoretically an antibody potent serum should prevent paralysis. Antibodies capable of neutralizing poliomyelitis virus can be demonstrated in the blood of convalescents and even in certain normal individuals. A number of investigators have reported the favorable use of convalescent serum clinically in several large series of cases.

On the other side it is argued that poliomyelitis is not a systemic disease at any time but a neurological disease from the onset, that virus is fixed to nerve tissue possibly as early as the period of incubation, that serum cannot reach the virus by the blood route and that even if it could there is evidence to show that the virus can multiply even in its presence. Even large doses of immune serum have failed to protect monkeys from infective doses of virus if given after inoculation. In those instances in which clinical trials of convalescent serum have been carefully controlled and used on a sufficiently large scale no convincing results have been shown to follow its use.

The Ideal Immune Serum

Landon and Smith in their *Handbook* on poliomyelitis suggest several criteria for a theoretically effective convalescent serum in the treatment of acute anterior poliomyelitis. According to them it should be of known neutralizing titre. It should be obtained from a woman possessed of the B type of agglutinin and should be collected during the third month of pregnancy. The donor must have recently recovered from an abortive attack of poliomyelitis. Finally it should be administered in sufficiently large dosage.

Of further interest is the editorial, in a similar view, from the September, 1935 issue of the *Southern Medical Journal*:

STUDIES OF POLIOMYELITIS

In prevention of yellow fever, all methods of sanitation and antisepsis were useless until it was demonstrated that the infectious agent was transmitted by a single species of mosquito. In

the case of poliomyelitis, an insect carrier has not been demonstrated, but attempts to infect monkeys have proven a remarkably limited path of invasion. The living body seems to be vulnerable to this virus at only two points, and these are smaller and more inaccessible than the heel of Achilles. Recent studies have brought out many facts of interest.

Infantile paralysis is said to resemble diphtheria in some of its reactions in the body, particularly in its choice of human victims.¹ Both are serious diseases of children, the susceptibility rate being lower than that of measles or whooping cough. With both, it is probable that light infections occur which gradually immunize a large part of the population. General health seems to bear no direct relation to susceptibility. Age is the potent factor, small children being more commonly susceptible, while the proportion of immunes increases with the age group. Probably most adults are immune. In the case of diphtheria, there is a test for susceptibility. In infantile paralysis, this practical aid is lacking.

Various biological fluids are reported to neutralize the virus of poliomyelitis outside the body. Among these are the nasal secretions of healthy adults, placental extract, pregnancy urine, vitamin C and several endocrine extracts. Undiluted human tears, according to Jungeblut,² of New York, rapidly inactivate it. Saliva and spinal fluid of the same individuals have no destructive effect, and spinal fluid even of monkeys convalescent from infantile paralysis and with a high titer of immune serum fails to neutralize the virus.

The pathology seems to be limited to the central nervous system, with no lesions outside the nervous tissues.³ Flexner and Lewis showed some years ago that the path of infection is through the nose. Schultz and Gebhardt,⁴ of Stanford University, in 1934, presented evidence that the virus after intranasal inoculation gains admission to the central nervous system through the nerves of smell. When these nerves were sectioned by cauterization of the olfactory bulbs, virus placed in the nose failed to induce the disease. The same animals were later infected by inoculation directly into the cerebrum, showing that the barrier was mechanical and local; they had no general immunity.

Lennette and Hudson,⁵ of the University of Chicago, have confirmed and extended the observations of the Californians. Normal monkeys are extremely susceptible to intranasal inoculations of polio virus. To infect them by the intravenous route, massive doses must be used. Even then the virus is excreted from the blood stream into the nasopharynx and is present in the nasal washings before the onset of the disease. If the olfactory bulbs are cauterized, heavy intranasal inoculation does not produce the disease. After intravenous inoculation in the same animals, the virus may again be recovered from the nasal secretions, showing that it has been excreted into the nose, but the disease does not develop. Not only the usual entrance, but the sole entrance, in the monkey is apparently these nerves; even if the virus is in the circulating blood it can reach the susceptible central nervous system only through the olfactory passage.

Since these nerves are the only path of entry, elimination of them should close the door to systemic infection. Olfactory section thus possibly offers a surgical prevention of the disease. Any individual given the two alternatives, infantile paralysis or olfactory section, would sacrifice his sense of smell rather than his means of locomotion. In view of the uncertain course of infec-

tion even after definite exposure, nerve destruction will hardly be attempted as prophylaxis. A temporary harmless blockage of these vulnerable points by antiseptics during an epidemic would have experimental interest. In difficulty it would probably compare with the difficulty of antiseptics in the blood stream. Though polio virus appears to be fairly easily recovered from nasal washings of monkeys with the disease, it is reported to be quite difficult to obtain it in the same manner from human beings.⁶ This may indicate either a higher degree of human immunity, or a difference in the course of the infection.

1. Zmer, R. L.; and Jungeblut, C. W.: Effect of Various Cortico-adrenal Extracts on Diphtheria Toxin in vivo and in vitro. *Proc. Soc. Exper. Biol. & Med.*, 32:1583, June, 1935, Jungeblut, C. W.; and Steinbach, M. M.: *Idem*, p. 1537.

2. Jungeblut, C. W.: Occurrence of Poliocidal Substances in Tears, Saliva and Cerebrospinal Fluid of Normal Individuals. *Proc. Soc. Exper. Biol. & Med.*, 32:1534, June, 1935.

3. Brodie, Maurice: Role of Convalescent Serum in Pre-paralytic Poliomyelitis. *Jour. Immunol.*, 25:353, 1935.

4. Schultz, E. W.; and Gebhardt, L. P.: Olfactory Tract and Poliomyelitis. *Proc. Soc. Exper. Biol. & Med.*, 31:728, 1934.

5. Lennette, E. H.; and Hudson, N. P.: Relation of Olfactory Tracts to Intravenous Route of Infection in Experimental Poliomyelitis. *Ibid.*, 32:1444, June, 1935.

6. Trask, J. D.; and Webster, L. T.: Isolation of Poliomyelitis Virus from the Nasopharynx. *Jour. Exper. Med.*, 62:245, Aug. 1935. Kramer, S. D.: Detection of a Healthy Carrier of Poliomyelitis without History of Contact. *Proc. Soc. Exper. Biol. & Med.*, 32:1165, 1935.

Officers and committees of the Medical Society of Delaware are now engaged in preparing their annual reports for presentation at the Annual Session, which will be held October 7th-10th. We urge all those thus engaged to submit their reports with a maximum of clarity and a minimum of verbosity. No report "clicks" so snappily as does the one that is short and to the point.

The Directory page, printed on the reverse of the President's photo, needs some corrections, we feel sure. Will the organizations listed there please advise us of the corrections that should be made?

Wilmington's cancer facilities grow apace. One of the local radiologists has installed in his office the latest type of shock-proof deep therapy x-ray machine, which develops 220,000 volts and which guarantees a beam of radiation more nearly approaching the rays of radium than any heretofore found practical. Thus progress marches on.

Last year 65 per cent of our members attended the Annual Session at Dover, a record equalled by few states. Let us surpass our own record this year. On to Wilmington!

MISCELLANEOUS

American Medical Directory

The work of revising and compiling the new Fourteenth Edition of the AMERICAN MEDICAL DIRECTORY has been started.

After every Directory is published a number of complaints are received from physicians who have not been listed as members or fellows of the American Medical Association. Some of these men have possibly lost appointments with industrial firms, insurance companies, railroads, etc., because they were not indicated as members. They may have been members and let their membership lapse, or new men in the community who failed to join their local society in time to indicate this information in the Directory.

To eliminate such criticism, we are notifying all delinquents and eligible applicants that a new Directory is going to be published. We call to the attention of our readers the importance of sending in their data promptly when requested, and the keeping up of their membership in our Society.

It will probably be two years, or 1938, before another Directory will be issued.

International Assembly

The Inter-State Postgraduate Medical Association of North America extends a very cordial invitation to all physicians in good standing to attend the International Assembly of the Association, to be held in the city of Detroit, Michigan, October 14 to 18, inclusive, 1935.

An unusually interesting clinical and didactic program including all branches of medicine and surgery and the specialties, has been arranged by the program committee.

In co-operation with the Michigan State Medical Society, the Wayne County Medical Society, and with the active support of the Detroit Convention and Tourist Bureau, and the Detroit Board of Commerce, a most excel-

lent opportunity for an intensive week of postgraduate medical instruction is offered by a very large group of acknowledged leaders in the profession.

The registration fee is \$5.00. The railroad fare, on the "Certification Plan," is one and one-third fares for the round trip. There will be no advance in hotel rates.

The assembly is the second largest medical convention in the world, being exceeded only by the American Medical Association. Dr. Charles H. Mayo is the President for 1935.

American College of Surgeons

The Clinical Congress of the American College of Surgeons will be held in San Francisco and Oakland, October 28-November 1, 1935. The two medical schools and twenty-seven hospitals will participate in the clinical program, and will present a complete showing of their activities in all branches of surgery. The registration fee is \$5.00, and the fare one and one-third, on the "Certification Plan." The hotel rates will not be advanced.

Dr. Robert B. Greenough, of Boston, is President, and Dr. Donald C. Balfour, of Rochester, Minnesota, is the President-Elect.

New York Academy of Medicine

The Eighth Annual Graduate Fortnight of The New York Academy of Medicine will be held October 21 to November 2 and will be devoted to a consideration of DISEASES OF THE RESPIRATORY TRACT.

Eighteen important hospitals of the city will present co-ordinated afternoon clinics and clinical demonstrations. At the evening meetings prominent clinicians from various parts of the country, who are recognized authorities in their special lines of work, will discuss various aspects of the general subject.

A comprehensive exhibit of books and of anatomical, bacteriological and pathological specimens and research material will be assembled. Demonstrations will be held at regular intervals.

The registration fee is \$2.00.

BOOK REVIEWS

New and Nonofficial Remedies, 1935. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1935. Cloth. Price \$1.50. Pp. 510. Chicago: American Medical Association, 1935.

In this book the Council on Pharmacy and Chemistry lists and describes the medicinal preparations that it has found acceptable for general use by the medical profession. A glance at the list of the Council members and the long list of consultants appearing in the first part of the book gives ample warrant for the authority of the Council selections.

Not only does the Council "accept" new preparations but from time to time it omits those which have been accepted but which have not with the lapse of time upheld their original promise, of therapeutic merit. The list of omissions for 1934 shows that the Council has been mainly concerned in this respect with *B. acidophilus* preparations and with antiseptics. Several preparations of each class have been omitted. The list of admissions does not reveal the presence of any preparation that promises to be epoch making in the sense that insulin was, for instance. However, the following newly accepted preparations are noteworthy; Carbarsone, an arsenical used chiefly in the treatment of amebiasis (the Council published a special report on this drug, supplementing the preliminary report of 1932); Hippuran and Diodrast, two different types of urographic contrast mediums; Carotene, the precursor of vitamin A; Dilaudid, a substitute for morphine; Neo-Synephrin Hydrochloride, which has a number of advantages as a vaso-constrictor over synephrin tartrate; and Diothane, which represents a type of local anesthetic entirely different chemically from any heretofore accepted for N. N. R.

The description of products containing vitamins A and/or D have been revised to give the potencies in terms of the recently adopted pharmacopeial units, thus bringing some measure of uniformity into this heretofore chaotic field. No doubt the book will be revised next year to conform with the new Pharmacopeia in its entirety.

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations and the biologic products are each preceded by a general discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplement or supplant.

Physicians who wish to know why a given proprietary is not described in New and Non-official Remedies will find the "Bibliographical Index to Proprietary and Unofficial Articles not Included in N. N. R." of much value. In this section (in the back of the book) are given references to published articles dealing with preparations that have not been accepted. These include references to the Reports of the Council, to Reports of the A. M. A. Chemical Laboratory and to articles that have appeared in The Journal.

Annual Reprints of the Reports of the Council of Pharmacy and Chemistry of the American Medical Association for 1934, with the Comments That Have Appeared in The Journal. Cloth. Price \$1. Pp. 135. Chicago: American Medical Association, 1934.

Each succeeding volume of reports of the Council reveals more of the long and successful fight in the interest of rational therapeutics. The Council is no longer chiefly concerned with noisome proprietaries and yet this latest volume contains reports on such articles as "Vita-Cell," a secret preparation marketed with exaggerated claims, and "Raylos," a shotgun preparation marketed in a way to promote its ill-advised use by the public. Most of the "unacceptable" reports in this volume are concerned with products that may have some merit but are not offered to the public in a way which experience has taught the Council is necessary before a therapeutic agent is acceptable. Such products are Iodine Dusting Powder (Sulzberger), rejected for lack of clinical evidence of its advantage over one of its con-

stituents; Pernoston, rejected because of lack of clinical evidence to justify routine intravenous injection of barbital compounds; Dihydranol, a claimed bactericidal agent proposed for use as an "intestinal antiseptic," a claim not supported by sufficient clinical evidence; and Squibb Adex Tablets, a product containing a concentrate of vitamins A and D, for which the firm could not agree to adopt a more informative name.

To those who have followed the Council's investigation of *B. acidophilus* therapy, the report "*Acidophilus Bacillus Liquid-Mulford and Mulford Acidophilus Bacillus Block Omitted from N. N. R.*" will be of interest. The Council has apparently not yet reached an ultimate conclusion concerning *acidophilus* therapy, but it has for years held that no product could be expected to be of value unless it could show at least one hundred million viable *B. acidophilus* organisms at the "date of expiration." Competent bacteriologic examination showed that the two preparations here reported were inferior to this standard. Further grounds for omission were the failure of the manufacturer to comply with certain stipulations in regard to labels and advertising. Another noteworthy omission is that of Alpha-Napheo and its dosage forms, omitted because the Council on reconsideration found that it is a weak antiseptic.

The Council also issues preliminary reports, which define the status of new preparations for which the evidence is not yet sufficient to justify their presentation to the medical profession generally. Preliminary reports do not imply rejection but rather postponement of consideration until more evidence is reported by competent investigators. These reports are the outposts of therapeutic progress and as such are valuable sources of information to physicians. In this volume there are preliminary reports on Adrenal Cortex Extract, concerned mostly with scientific terminology, Cysteine Hydrochloride, Dihydroxy-Anthranol (Anthralin), Gastric Mucin, Hemoprotein (Brooks), Phenylmercuric Nitrate and Phenylmercuric Chloride.

Illustrative of the Council's efforts to keep those concerned informed of the basis for its

actions are the "Recent Revisions or Elaborations of the Council's Rules of Interest to Manufacturers and the Medical Profession," which have appeared in the last two volumes. These inform the profession of the various problems which arise and the care given to their consideration. To be commended also is the "Report on Sterility of Ampule Preparations."

Diseases of the Thyroid Gland: By Arthur E. Hertzler, M. D., Professor of Surgery, University of Kansas. Third edition. Pp. 348, with 181 illustrations. Cloth. Price, \$7.50. St. Louis: C. V. Mosby Company. 1935.

Hertzler's book on the thyroid is one of the classics of the day. A close observer and a persistent student, he has done more than any other American worker to correlate and to reconcile the clinical, the operating room, and the laboratory pictures in thyroid disease. More critical of himself than others, he has acquired the voice of authority by re-studying, year after year, every case about which he gets any news, and his personal follow-up is perhaps the most complete of any surgeon in the country. Thus he knows, as he says, that goitre is a life-time disease ending in cardiac death, unless appropriate treatment be instituted.

The new edition is practically a re-writing, and contains 62 more pages and 22 more illustrations than the second edition (1929). Incidentally, the illustrations of the operations are augmented and are better arranged. This is a book for every internist, surgeon and pathologist who comes in contact with a goitre patient.

On Health's Highways: By the New York City Cancer Committee. Pp. 341. Paper. New York: 1935.

This little brochure of illustrations is an exhibit of what animal experimentation in various medical fields has done to aid in the control of cancer. An informative and interesting booklet, it is to be hoped that it will reach those who need it most, the rabid antivivisectionists. If it does, it should do a lot of good. The foreword is by Dr. John C. A. Gerster. The New York City Cancer Committee is a unit of the American Society for the Control of Cancer.

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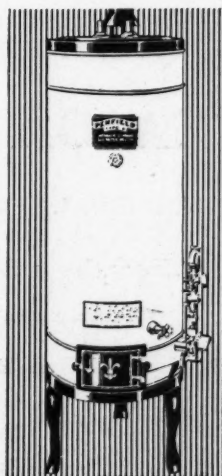


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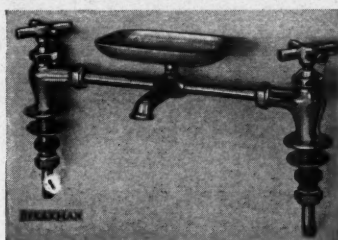
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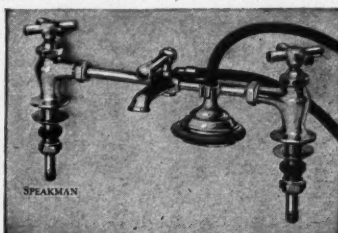
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